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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/233,377	01/18/1999	GURTEJ S. SANDHU	MI22-1114	7580
21567	7590	06/28/2004	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			PHAM, THANHHA S	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/233,377	Applicant(s) SANDHU ET AL.	
	Examiner Thanhha Pham	Art Unit 2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04/26/04 and interview dated 06/17/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24, 45, 52-61 and 71-73 is/are pending in the application.
- 4a) Of the above claim(s) 24, 52-54 and 59-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 45, 55-58 and 71-73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action responds to Applicant's Amendment in Paper No. dated 03/30/04 and interview dated 06/17/04

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:
 - a. Species A, claims 24, 52-54 and 59-61, drawn to a method of forming a refractory metal silicide layer comprising after forming the titanium metal layer , providing compressive stress inducing atoms into the titanium metal layer, the compressive stress inducing atoms being larger than silicon atoms.
 - b. Species B, claims 45, 55-58 and 71-73, drawn to a method of forming a refractory metal silicide comprising forming a refractory metal silicide on and direct physical contact with the compressive stress inducing material layer, the refractory metal silicide comprising a first crystalline phase.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim

is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Jennifer Taylor on 06/17/04 a provisional election was made without traverse to prosecute the invention of species B, claims 45, 55-58 and 71-73. Affirmation of this election must be made by applicant in replying to this Office action. Claims 24, 52-54 and 59-61 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 45, 56 and 71-72 are rejected under 35 U.S.C. 102(b) as being anticipated by Levinstein et al [US 4,378,628].

Levinstein et al (figs 1-6 and col 1-6) discloses the claimed method of forming a refractory metal silicide comprising:

forming a compressive stress inducing material layer comprising material chosen from a group consisting of silicon nitride and silicon dioxide (phosphosilicate glass 25, fig 5, col 4 lines 56-68 and col 5 lines 1-9: since phosphosilicate glass 25 1 is formed of phosphor-doped silicon dioxide, the phosphosilicate glass has a characteristics of a compressive stress inducing material layer -- see MPEP 2112: *The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d1252, 1254, 195 USPQ 430, 433 (CCPA 1977); Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation*

under 35 U.S.C. 102." In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977)) over a first side of a substrate (11) [claims 45, 56, 71 and 72];

forming a refractory metal silicide (31, fig 5, col 5 lines 10-17) on and in direct physical contact with the compressive stress inducing material layer (25), the refractory metal silicide comprising a first crystalline phase [claims 45 and 71]; and

after forming the refractory metal silicide comprising a the first crystalline phase, annealing the compressive stress inducing material layer and the refractory metal silicide comprising the first crystalline phase to form a refractory metal silicide of a second crystalline phase (41, fig 6, col 5 lines 21-32) [claims 45 and 71].

5. Claims 45, 55-58 and 71-73 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawaguchi [US 5,739,573].

Kawaguchi (figs 5's and col 1-25) discloses the claimed method of forming a refractory metal silicide comprising:

forming a compressive stress inducing material layer comprising material chosen from a group consisting of silicon nitride and silicon dioxide (spacer 114a, fig 5C: since spacer 114a is formed of silicon dioxide, the spacer 114c has a characteristics of a compressive stress inducing material layer -- see MPEP 2112: *The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d1252, 1254, 195 USPQ 430, 433 (CCPA 1977); Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation*

under 35 U.S.C. 102." In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977)) over a first side of a substrate (101) [claims 45, 56, 71 and 72];

forming a refractory metal silicide comprising titanium silicide (108aa formed by lamp annealing at 650°C, fig 5E, col 11 lines 17-25 and col 12 lines 5-16) on and in direct physical contact with the compressive stress inducing material layer (114a), the refractory metal silicide comprising a first crystalline phase C49 [claims 45, 55, 57-58, 71 and 73]; and

after forming the refractory metal silicide comprising the first crystalline phase, annealing the compressive stress inducing material layer (114a) and the refractory metal silicide comprising the first crystalline phase to form a refractory metal silicide of a second crystalline phase C54 (titanium silicide 108aa after being lamp annealed at 850°C, col 11 lines 17-21 and col 12 lines 5-16) [claims 45, 55, 58 and 71].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhha Pham whose telephone number is (571) 272-1696. The examiner can normally be reached on Monday and Thursday 9:00AM - 9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2813

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thanhha Pham



JACK CHEN
PRIMARY EXAMINER